

WHAT IS CLAIMED IS:

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1. A shutter for digital still cameras comprising:  
a motor having a stator including an energizing coil,  
having a permanent magnetic rotor capable of reciprocatingly  
moving by a predetermined angle from an initial position  
5 correspondingly to a direction in which a current is  
supplied to said coil, and having a driving pin integrally  
provided with said rotor and extending in parallel with a  
rotary shaft of said rotor;

at least one diaphragm blade being operative to follow  
10 said driving pin, capable of moving to a predetermined  
exposure aperture regulating position when said rotor moves  
from the initial position, and operative to be returned to a  
fully opened position of a circular exposure aperture when  
said rotor returns to the initial position;

15 first forcing means capable of pushing said diaphragm  
blade to move said diaphragm blade to said exposure aperture  
regulating position;

at least one shutter blade capable of fully opening  
said exposure aperture when said rotor is in the initial  
20 position, and capable of operating together with said  
driving pin to open and close said exposure aperture during  
said rotor reciprocatingly moves;

second forcing means capable of pushing said rotor to

cause said rotor to return from a closed position in which  
25 said exposure aperture is closed, and capable of stopping  
said rotor at a rotational position corresponding to the  
exposure aperture in cooperation with said first forcing  
means when said rotor is in vicinity of the rotational  
position and the current to said coil is interrupted; and

30 magnetic holding means respectively disposed at plural  
places facing the peripheral surface of said rotor, and  
capable of maintaining the stopped position of said rotor by  
a magnetic force of said rotor, which acts from said rotor  
thereto, in a fully opened state and a closed state of said  
35 exposure aperture even when the current to the coil is  
interrupted.

2. A shutter for digital still cameras according to  
claim 1, wherein said magnetic holding means comprises at  
least one first magnetic material member disposed so that,  
under the state in which said exposure aperture is fully  
5 opened, said rotor is rotated by the magnetic force in a  
direction in which said shutter blade is moved to open said  
exposure aperture, and at least one second magnetic material  
member disposed so that, under the state in which said  
exposure aperture is closed, said rotor is rotated by the  
10 magnetic force in a direction in which said shutter blade is  
moved to close said exposure aperture.

3. A shutter for digital still cameras according to claim 2, wherein said magnetic holding means further comprises at least one defective portion formed in a yoke which is disposed so as to surround the peripheral surface of said rotor, and provided at a place where the rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to open said exposure aperture, and positioned so that said rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to open said exposure aperture, under the state in which said exposure aperture is fully opened, and positioned so that said rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to close said exposure aperture, under the state in which said exposure aperture is closed.

4. A shutter for digital still cameras according to claim 1, wherein said diaphragm blade is a single diaphragm blade having an aperture of a diameter smaller than that of said exposure aperture.

5. A shutter for digital still cameras according to claim 1, wherein said shutter blades are two shutter blades actuated by said driving pin so as to relatively operate.

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6. A shutter for digital still cameras according to claim 1, wherein said first pushing means comprises a diaphragm actuating member connected to said diaphragm blade and rotatably attached to a shutter base plate, and a first  
5 spring engaged with said diaphragm actuating member so that said diaphragm actuating member is able to rotate following said driving pin.

7. A shutter for digital still cameras according to claim 6, wherein said second pushing means is a second spring wound around the rotation shaft of said diaphragm actuating member and having one end engaged with said  
5 diaphragm actuating member and the other end engaged with ~~said driving pin.~~

8. A shutter for digital still cameras according to claim 1, wherein when said rotor is rotated from an initial position, energization of said coil is performed once so that said rotor rotates in a direction in which said shutter  
5 blade performs an opening operation of opening said exposure aperture, and thereafter, energization of said coil is performed so that said rotor rotates in an opposite direction.